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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,196	04/28/2005	Toshiyuki Amagasa	2005-0718A	9014

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EXAMINER	
PRESTON, ERIK D	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/533,196	AMAGASA, TOSHIYUKI	
	Examiner	Art Unit	
	Erik D. Preston	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 32 is objected to because of the following informalities: In the last line of the claim, the phrase "...second circuit component containing..." lacks proper antecedent basis and, for examination purposes, will be interpreted as saying "...second circuit component containing section..." Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 21-36,38 & 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breynaert et al. (WO 01/79787) in view of Baader et al. (US 5954258).

With respect to claim 21, Breynaert teaches a motor unit comprising: A motor (Fig. 1, #1) including a speed reduction mechanism (Fig. 1, #3); a case frame (Fig. 1, #20) containing said speed reduction mechanism; a cover assembly (Fig. 1, #30) fitted to an upper side of said case frame and containing a drive control section (Fig. 1, #5) having a control circuit for driving said motor and a power supply circuit (English language equivalent: US 6998741, Col. 3, Lines 6-18), but it does not teach said drive control section including a first circuit component containing section; a second circuit component containing section, said first circuit component containing section being arranged in a three-dimensional manner so as to be stacked one above the other with respect to an upper and lower direction, and so as to be located at an upper side of said

speed reduction mechanism; and a connecting line arranged between said first circuit component containing section and said second component containing section. However, Baader teaches a drive control section (Fig. 1, #31) including a first circuit component containing section (Fig. 2, #43); a second circuit component containing section (Fig. 2, #55), said first circuit component containing section being arranged in a three-dimensional manner so as to be stacked one above the other; and a connecting line (Fig. 2, #58) arranged between said first circuit component containing section and said second component containing section. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the drive control section of Breynaert in view of the two compartment drive control section as taught by Baader because it provides a means for keeping the electrical components of a drive control section at an acceptable level of heat while also allowing a very compact arrangement of the components to be realized (Baader, Col. 1, Line 32-Col 3, Line 31).

With respect to claim 22, Breynaert in view of Baader teaches the motor unit of claim 21, and Baader teaches that said first circuit component containing section includes a printed wiring board, and the second circuit component containing section includes circuit components electrically connected to the printed wiring board through the connecting line (as seen in Fig. 2).

With respect to claim 23, Breynaert in view of Baader teaches the motor of claim 22, and Baader teaches that the printed wiring board and the circuit components in said second circuit component section are arranged substantially in parallel with each other, said connecting line being interposed between them (as seen in Fig. 2).

With respect to claim 24, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that signal system circuit components are arranged in the first circuit containing section and power system components are arranged in the second circuit component containing section.

With respect to claim 25, Breynaert in view of Baader teaches the motor of claim 24, and Baader teaches that the power system components are directly mounted on the connecting line (as seen in Fig. 2).

With respect to claim 26, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that a printed wiring board arranged in said first circuit component containing section and said second circuit component containing section, said signal system circuit components and said power system components being mounted on said printed wiring board, an area of conductive pattern of said wiring board arranged in said first circuit component containing section (the area on the board left of the connector) being smaller than an area of conductive pattern of said wiring board arranged in said second circuit component containing section (the entire board), but it does not explicitly teach the conductive pattern being copper-foil. However, circuit boards with copper-foil conductive patterns were extremely well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a circuit board with a copper-foil conductive pattern in the invention of Baader because copper-foil is the most common material in the art used for forming conductor patterns on circuit boards, and it also would have been obvious to include a circuit board with a copper-foil conductive pattern in the invention of Baader since it has

been held that one of ordinary skill in the art at the time the invention would choose a suitable and desirable material, because it would be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice (In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

With respect to claim 27, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that said second circuit component containing section is located on an upper side of said first circuit component containing section

With respect to claim 28, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that a heat sink is included at an outer and upper side of said second circuit component containing section (as seen in Fig. 2).

With respect to claim 29, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that said cover assembly has a two-chamber structure including a first chamber comprising said first circuit component containing section, and a second chamber comprising said second circuit component containing section (as seen in Fig. 2).

With respect to claims 30 & 31, Breynaert in view of Baader teaches the motor of claims 29 & 21, and Baader teaches that said cover assembly includes a dividing wall (Fig. 2, #44) separating said first circuit component containing section from said second circuit component containing section.

With respect to claim 32, Breynaert in view of Baader teaches the motor of claim 31, and Baader teaches that said dividing wall has a connecting hole for allowing said

first circuit component containing section to communicate with said second circuit component containing section (as seen in Fig. 2).

With respect to claim 33 & 34, Breynaert in view of Baader teaches the motor of claims 32 & 31, and Baader teaches that said cover assembly further includes: a bottom case having a dividing wall, said first circuit component containing section being located between said dividing wall and said case frame; and a case cover fitted to said bottom case, said second circuit component containing section being located between said case cover and said dividing wall (as seen in Fig. 2).

With respect to claim 35, Breynaert in view of Baader teaches the motor of claim 34, and Baader teaches that power system circuit components (Fig. 2, #40) are fixed to an inner surface of said case cover.

With respect to claims 36 & 38, Breynaert in view of Baader teaches the motor of claims 35 & 34, and Baader teaches that the case cover has a plurality of fins (Fig. 2, #38) on an outer surface thereof.

With respect to claims 41 & 42, Breynaert in view of Baader teaches the motor of claim 21, and Breynaert teaches that said first circuit component containing section includes a position sensor (Fig. 1, #33) for detecting a rotation angle of a drive shaft (as seen in Fig. 1) of said speed reduction mechanism, said drive being operable to output a decelerated rotation of said motor shaft.

With respect to claim 43, Breynaert in view of Baader teaches the motor of claim 21, and Baader teaches that said connection line electrically connects circuit components contained in said first circuit component containing section to circuit

components contained in said second circuit component containing section, and said connecting line is operable to absorb noise generated from said circuit components (the connecting line will inherently absorb at least a portion of the noise produced by the power semiconductors).

Claims 37,39 & 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breynaert et al. (WO 01/79787) in view of Baader et al. (US 5954258) further in view of Kagaya et al (US 2003/0084677). Breynaert in view of Baader teaches the motor of claims 35,38 & 34, and Baader teaches that the case cover is made of aluminum (Claim 12), but it does not teach that a black alumite treatment has been applied to the outer surface of the case cover. However, Kagaya teaches a radiation plate with a black alumite treatment (Paragraph 32). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the heat sink of Baader in view of the radiation plate as taught by Kagaya because it effectively receives thermal radiation, has a high emission rate, and provides high thermal conductivity (Kagaya, Paragraph 32); and also because it has been held that one of ordinary skill in the art at the time the invention would choose a suitable and desirable material, because it would be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice (In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

Claims 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breynaert et al. (WO 01/79787) in view of Baader et al. (US 5954258) in view of Matsuyama et al. (US 6756711).

With respect to claim 44, Breynaert teaches a motor including: a yoke (Fig. 1, #6) having a closed-bottom cylindrical shape; a permanent magnet (English equivalent, Col. 2, Lines 57-60); a motor shaft (Fig 1, #8) having a first end rotatably supported in said yoke; an armature coil wound around an armature core (English equivalent, Col. 2, Lines 61-67); a commutator (Fig. 1, #10) fixed to said motor shaft and arranged adjacent to said armature core and electrically connected to said coil; a brush (Fig. 1, #11) in slide contact with said commutator; and a brush holder for retaining said brush (as seen in Fig. 1); a speed reduction mechanism engaged with a worm (English equivalent, Col. 3, Lines 1-4) of said motor shaft to decelerate a rotation of said motor shaft and to transfer the decelerated rotation to an output shaft; a case frame connected to said yoke and containing said speed reduction mechanism; and a cover including: a signal system circuit and a power system circuit for applying an electric current to said motor from said signal system circuit components to drive said motor said cover being arranged to face said speed reduction mechanism, but it does not teach said permanent magnet being fixed on an inner circumferential surface of said yoke, a bottom case having a first circuit component containing section, a second circuit component containing section, a dividing wall arranged between said first circuit component containing section and said second circuit component containing section, said bottom case being arranged such that said first circuit component containing section faces said speed reduction mechanism, or a case cover fitted to said bottom case and shaped to cover said second circuit containing section. However, Baader teaches a bottom case having a first circuit component containing section, a second circuit component

containing section, a dividing wall arranged between said first circuit component containing section and said second circuit component containing section, and a case cover fitted to said bottom case and shaped to cover said second circuit containing section (as seen in Fig. 2), and Matsuyama teaches a permanent magnet (Fig. 1, #5) being fixed on an inner circumferential surface of a yoke (Fig. 1, #4). It would have been obvious to one of ordinary skill in the art at the time of the invention to both modify the cover of Breynaert in view of the bottom case and cover as taught by Baader because it provides a means for keeping the electrical components of a drive control section at an acceptable level of heat while also allowing a very compact arrangement of the components to be realized (Baader, Col. 1, Line 32-Col 3, Line 31), and to place the magnets of Breynaert on an inner circumferential surface of the yoke such as is taught by Matsuyama because that is the conventional portion of the motor yoke to which permanent magnets are attached.

With respect to claim 45, Breynaert in view of Baader in view of Matsuyama teaches the motor of claim 44, and Breynaert teaches that said first circuit component containing section includes a rotation sensor (Fig. 1, #33) for detecting the rotation of said motor shaft.

With respect to claim 46, Breynaert teaches a motor including: a yoke (Fig. 1, #6) having a closed-bottom cylindrical shape; a permanent magnet (English equivalent, Col. 2, Lines 57-60); a motor shaft (Fig 1, #8) having a first end rotatably supported in said yoke; an armature coil wound around an armature core (English equivalent, Col. 2, Lines 61-67); a commutator (Fig. 1, #10) fixed to said motor shaft and arranged

adjacent to said armature core and electrically connected to said coil; a brush (Fig. 1, #11) in slide contact with said commutator; and a brush holder for retaining said brush (as seen in Fig. 1); a speed reduction mechanism engaged with a worm (Col. 3, Lines 1-4) of said motor shaft to decelerate a rotation of said motor shaft and to transfer the decelerated rotation to an output shaft; a case frame connected to said yoke and containing said speed reduction mechanism; and a cover including: a signal system circuit including a position sensor and a power system circuit for applying an electric current to said motor from said signal system circuit components to drive said motor said cover being arranged to face said speed reduction mechanism, but it does not teach said permanent magnet being fixed on an inner circumferential surface of said yoke, a bottom case having a first circuit component containing section, a second circuit component containing section, a dividing wall arranged between said first circuit component containing section and said second circuit component containing section, said bottom case being arranged such that said first circuit component containing section faces said speed reduction mechanism, a case cover fitted to said bottom case and shaped to cover said second circuit containing section, or the second circuit components including a FET (field effect transistor). However, Baader teaches a bottom case having a first circuit component containing section, a second circuit component containing section, a dividing wall arranged between said first circuit component containing section and said second circuit component containing section, and a case cover fitted to said bottom case and shaped to cover said second circuit containing section (as seen in Fig. 2), Matsuyama teaches a permanent magnet (Fig. 1,

#5) being fixed on an inner circumferential surface of a yoke (Fig. 1, #4), and FET's were extremely well known in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to (1) modify the cover of Breynaert in view of the bottom case and cover as taught by Baader because it provides a means for keeping the electrical components of a drive control section at an acceptable level of heat while also allowing a very compact arrangement of the components to be realized (Baader, Col. 1, Line 32-Col 3, Line 31), (2) place the magnets of Breynaert on an inner circumferential surface of the yoke such as is taught by Matsuyama because that is the conventional portion of the motor yoke to which permanent magnets are attached and (3) include a FET in the power system circuit of Breynaert because FET's are one of the cheapest and most commonly used power system circuit components available in the art.

With respect to claim 47, Breynaert in view of Baader in view of Matsuyama teaches the motor of claim 46, and Breynaert teaches that said first circuit component containing section includes a rotation sensor (Fig. 1, #33) for detecting the rotation of said motor shaft.

With respect to claim 48, Breynaert in view of Baader in view of Matsuyama teaches the motor of claim 46, Baader teaches that said case cover has a heat sink; and Breynaert teaches that said position sensor of said first circuit components is operable to detect a rotation angle of both a drive shaft of the speed reduction mechanism and the rotation of said motor shaft (since both shafts are integrally connected, when the sensor detects the movement of one of the shafts, it also detects

the movement of the other), it also would have been obvious to one of ordinary skill in the art at the time of the invention to include separate hall sensors to independently detect the movement of the two shafts since it has been held that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)).

Response to Arguments

Applicant's arguments with respect to claims 21-48 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5994807, US 6998741 & US 2002/0060105

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

06/06/06

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